



Department of Energy

Idaho Operations Office
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1410 North Hilton
Boise, Idaho 83706-1255

Nicholas Ceto, INEEL Project Manager
Environmental Protection Agency Region 10
712 Swift Blvd., Suite 5
Richland, WA 99352

SUBJECT: Proposal for Semi-Annual Aquifer Monitoring at the Radioactive Waste Management Complex (RWMC) - (EM-ER-04-144)

Dear Mr. Koch and Mr. Ceto:

Aquifer monitoring at RWMC is currently performed quarterly. Based on historical aquifer monitoring data, it is recommended to change that frequency to semi-annual. Samples would likely be drawn in the Fall and Spring to avoid the Winter and to get samples after the snow melts.

Routine monitoring of aquifer wells around the RWMC began in 1992, with a full complement of 15 wells being sampled quarterly starting in 1997. A summary of the detections from Idaho National Engineering and Environmental Laboratory (INEEL) monitoring results is presented in the attached table. Data summaries published in the Ancillary Basis for Risk Analysis (through 2001) and in FY 2002 and FY 2003 annual reports indicate that detections of radionuclide contaminants of concern are sporadic and not indicative of any trends. Detection rates in the last three years have been stable and comparable to detection rates from the previous three years. A flurry of eight Pu-238 detections were a concern in 2001; however, there have been no detections of Pu-238 in any of the 15 wells (117 analyses) since the laboratory established a clean room for the analysis of the INEEL's environmental samples.

Organic compounds are regularly detected in some INEEL samples collected around the RWMC, although the data are noisy, with no evident trends. The United States Geological Survey (USGS) collects samples monthly from the RWMC production well, and semi-annually (April and October) from five other USGS wells (USGS-87, -88, -89, 117, 119). Carbon tetrachloride frequently exceeds the maximum concentration limit in aquifer samples, however, remediation of organic contaminants in the vadose zone is ongoing through the Organic

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Contamination in the Vadose Zone program.

The INEEL Oversight Program's (OP) Verification Water Monitoring Program also monitors the aquifer around the RWMC, and reports similar findings in their monitoring summaries (see http://www.oversight.state.id.us/ov_library/index.cfm-qdr). The OP co-samples M1S and M3S with the INEEL, and analyzes samples for Pu, Am, Cs-137, gross alpha, gross beta, tritium, carbon tetrachloride, chromium, and other analytes.

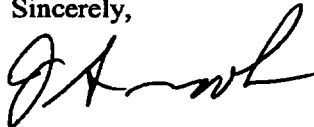
Trends are not evident for any of the contaminants of concern to the Waste Area Group 7 because the radionuclide detections are generally too sporadic, and the organic data are too noisy. While consistent monitoring is needed to support the Remedial Investigation and Feasibility Study (RI/FS) and to provide assurances of aquifer protection, quarterly collections do not ensure protection or provide trend verification. Semi-annual monitoring will provide the necessary data for an adequate RI/FS. Though the first Addendum to the Work Plan does not specifically identify quarterly aquifer monitoring as a requirement, the expectation of quarterly monitoring is implied. Table 3-3 refers to "quarterly monitoring" and Table 3-4, across from "groundwater monitoring data," says, "Continue ongoing sampling and monitoring of groundwater." The ongoing program was quarterly.

Each sampling costs approximately \$100K to collect samples and \$25K to \$40K to interpret and report the data. The elimination of two sampling events would result in an approximate savings of \$250K per year.

Data quality objectives specifically for aquifer monitoring are presently being developed for inclusion in the annual revision to the Field Sampling Plan for OU 7-13/14. Agency concurrence to reduce aquifer monitoring frequency from quarterly to semi-annually will be needed for this document.

Please contact me at 208-526-5920 if you have any questions.

Sincerely,



Jeff Snook, Manager
WAG 7

Enclosure

Table 1. Detection history for various WAG 7 contaminants. Red values exceed the MCL.

Contaminant of Concern	# Detections 1997-2003	# Samples 1997-2003	Last Detection	Max Recent Concentration	MCL
AM-241	7	298	Sept. 2001	0.07±0.02 pCi/L	15 pCi/L (total alpha)
C-14	22	280	Sept. 2002	7.1±0.8 pCi/L	2000 pCi/L
Cl-36	0	30	NA	NA	700 pCi/L
H-3	Regularly detected in 7 of 15 WAG 7 wells	293	Aug. 2003	1500±158 pCi/L	20,000 pCi/L
I-129	4	280	Oct. 1998	1.5±0.4 pCi/L (18 rounds of nondetects in that well since)	1 pCi/L
Np-237	0	285	NA	NA	15 pCi/L (total alpha)
Pu-238	9	283	Sept. 2001	0.034±0.011 pCi/L	15 pCi/L (total alpha)
Pu-239/240	2	283	Sept. 2001	0.034±0.010 pCi/L	15 pCi/L (total alpha)
Tc-99	4	272	Jan. 2002	1.2 pCi/L	900 pCi/L
Carbon tetrachloride	Regularly detected in 8 of 15 WAG 7 wells	318 (277)	Aug. 2003	8 µg/L	5 µg/L
Toluene	Regularly detected in 2 of 15 WAG 7 wells	317 (279)	Aug. 2003	5 µg/L	1000 µg/L
Trichloroethene (TCE)	Regularly detected in 3 of 15 WAG 7 wells	324 (285)	Aug. 2003	3 µg/L	5 µg/L
Chromium	Regularly detected > background in 4 of 15 WAG 7 wells	349 (285)	Aug. 2003	36 µg/L	100 µg/L
Nitrate-N	Regularly detected > background in 1 of 15 WAG 7 wells	321 (293)	Aug. 2003	2.1 µg/L	10 µg/L

XXX – All samples, no recounts or reanalysis

(YYY) – Excludes second collected sample (duplicates)